



EFW

PTO/SB/21 (09-04)  
Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number 10/686,828

Filing Date Oct. 15, 2003

First Named Inventor Eric S. Olson

Art Unit

Examiner Name

Attorney Docket Number TCOM0010

### ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Reply to Missing Parts/Incomplete Application	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	Remarks	

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name			
Signature			
Printed name	Steven J Shattil		
Date	03/04/2005	Reg. No.	40,170

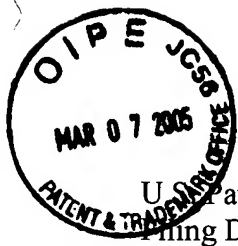
### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Steven J Shattil	Date	03/04/2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Internal Docket No.: TCOM0010

U.S. Patent Application No.: 10/686,828  
Filing Date: October 15, 2003  
First Named Inventor: Eric S. Olson  
Title: "Method and Apparatus for  
Interference Suppression with Efficient  
Matrix Inversion in a DS-CDMA System"

Date: March 4, 2005

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

### Information Disclosure Statement

Pursuant to 37 C.F.R. §1.56, 1.97, and 1.98, this Information Disclosure Statement is submitted in the above-identified patent application. A listing of documents to be published on the face of any patent granted from this application is submitted herewith on Form PTO-1449. Any other documents or information submitted for consideration by the Examiner are listed in this paper. A copy of each foreign patent and publication, or portion thereof listed or herein identified, is submitted herewith, except that a copy of any U.S. patent application identified herein or any patent publication or other information listed herein cited or submitted in a prior application relied upon for an earlier filing date under 35 U.S.C. §120 and identified below, is not submitted.

### Certification

This Information Disclosure Statement is submitted prior to the mailing date of the first Office Action on the merits received by Applicant in the above-identified application.

March 4, 2005  
Date

  
Steven J. Shattil

Respectfully submitted,

Steven J Shattil  
USPTO Reg. No. 40,170  
TensorComm, Inc.  
1490 W. 121st Avenue, Suite 202  
Westminster, CO 80234  
Phone: 303-327-4069 ext. #8  
Fax: 303-920-4796  
sshattil@tensorcomm.com



PTO/SB/08a (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 4088955	05-09-1978	Baghdady	
		US- 4309769	01-05-1982	Taylor, Jr.	
		US- 4359738	11-16-1982	Lewis	
		US- 4665401	05-12-1987	Garrard et al.	
		US- 4670885	06-02-1987	Parl et al.	
		US- 4780885	10-25-1988	Paul et al.	
		US- 4856025	10-08-1989	Takai	
		US- 4893316	01-09-1990	Janc et al.	
		US- 4922506	05-01-1990	McCallister et al.	
		US- 4933639	06-12-1990	Barker	
		US- 4965732	10-23-1990	Roy III et al.	
		US- 5017929	05-21-1991	Tsuda	
		US- 5099493	05-24-1992	Zeger et al.	
		US- 5105435	04-14-1992	Stilwell	
		US- 5109390	04-28-1992	Gilhousen et al.	
		US- 5119401	06-02-1992	Tsujimoto	
		US- 5136296	04-04-1992	Roettger et al.	
		US- 5151919	09-29-1992	Dent	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
		EP 0558910 A1	01-25-1993	Blaupunkt-Werke GmbH		435973
		EP 0610989 A2	01-31-1994	Phillips Patentverwaltung GmbH		435973
		JP2000-13360A	01-14-2000	NEC Corp.		435973
		DE 4201439 A1	07-22-1993	Daimler-Benz		435972
		DE 4326843 A1	02-16-1995	Richard Hirschmann GmbH & Co		435973

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 2

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5218359	06-08-1993	Minamisono	
		US- 5218619	06-08-1993	Dent	
		US- 5220687	06-05-1993	Ichikawa et al.	
		US- 5224122	06-29-1993	Bruckert	
		US- 5237586	08-17-1993	Bottomley	
		US- 5263191	11-16-1993	Dickerson	
		US- 5280472	01-18-1994	Gilhousen et al.	
		US- 5305349	04-19-1994	Dent	
		US- 5325394	06-28-1994	Bruckert	
		US- 5343493	08-30-1994	Karimullah	
		US- 5343496	08-30-1994	Honig et al.	
		US- 5347535	09-13-1994	Karasawa et al.	
		US- 5353302	10-04-1994	Bi	
		US- 5386202	01-31-1995	Cochran et al.	
		US- 5390207	02-14-1995	Fenton et al.	
		US- 5394110	02-28-1995	Mizoguchi	
		US- 5396256	03-07-1995	Chiba et al.	
		US- 5437055	07-25-1995	Wheatley III	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		DE 4343959 A1	06-29-1995	Richard Hirschmann GmbH & Co		522068
		WO 93/12590	06-24-1995	Array-Comm, Inc.		522068
		GB 2280575 A	02-01-1995	Roke Manor Research Limited		522068
						522068
						522068

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 3

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5440265	08-08-1995	Cochran et al.	
		US- 5448600	09-05-1995	Lucas	
		US- 5481570	01-02-1996	Winters	
		US- 5506865	04-09-1996	Weaver Jr.	
		US- 5513176	04-30-1996	Dean et al.	
		US- 5533011	04-02-1996	Dean et al.	
		US- 5553098	09-03-1996	Cochran et al.	
		US- 5602833	02-11-1997	Zehavi	
		US- 5644592	07-01-1997	Divsalar	
		US- 5736964	04-07-1998	Ghosh et al.	
		US- 5787130	07-28-1998	Kotzin et al.	
		US- 5844521	12-01-1998	Stephens et al.	
		US- 5859613	01-12-1999	Otto	
		US- 5872540	02-16-1999	Casabona	
		US- 5872776	02-16-1999	Yang	
		US- 5926761	07-20-1999	Reed et al.	
		US- 5930229	07-27-1999	Yoshida et al.	
		US- 5953369	09-14-1999	Suzuki	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
						548157
						548157
						548157
						548157
						548157

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 4

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5995499	11-30-1999	Hottinen et al.	
		US- 6002727	12-14-1999	Uesugi	
		US- 6014373	01-11-2000	Schilling et al.	
		US- 6018317	01-25-2000	Dogan et al.	
		US- 6088383	07-11-2000	Suzuki et al.	
		US- 6101385	08-08-2000	Monte et al.	
		US- 6104712	08-15-2000	Robert et al.	
		US- 6115409	09-05-2000	Upadhyay et al.	
		US- 6127973	10-03-2000	Choi et al.	
		US- 6131013	10-10-2000	Bergstrom et al.	
		US- 6137788	10-24-2000	Sawahashi et al.	
		US- 6141332	10-31-2000	Lavaen	
		US- 6154443	11-28-2000	Huang et al.	
		US- 6157685	12-05-2000	Tanaka et al.	
		US- 6157842	12-05-2000	Kaisson et al.	
		US- 6157847	12-05-2000	Buehrer et al.	
		US- 6163696	12-19-2000	Bi et al.	
		US- 6166690	12-26-2000	Lin et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
						601437
						601437
						601437
						601437
						601437

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 5

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 6172969	01-09-2001	Kawakami et al.	
		US- 6175587	01-15-2001	Madhow et al.	
		US- 6192067	02-20-2001	Toda et al.	
		US- 6201799	03-13-2001	Huang et al.	
		US- 6215812	04-10-2001	Young et al.	
		US- 6219376	04-17-2001	Zhodzishsky et al.	
		US- 6222828	04-24-2001	Ohlson et al.	
		US- 6230180	05-08-2001	Mohamed	
		US- 6233229	05-15-2001	Ranta et al.	
		US- 6233459	05-15-2001	Sullivan et al.	
		US- 6240124	05-29-2001	Wiedeman et al.	
		US- 6252535	06-26-2001	Kober et al.	
		US- 6256336	07-03-2001	Rademacher et al.	
		US- 6259688	07-10-2001	Schilling et al.	
		US- 6263208	07-17-2001	Chang et al.	
		US- 6275186	08-14-2001	Kong	
		US- 6278726	08-21-2001	Mesecher et al.	
		US- 6282231	08-21-2001	Norman et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
						619206
						619206
						619206
						619206
						619206

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 6

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 6282233	08-28-2001	Yoshida	
		US- 6285316	09-04-2001	Nir et al.	
		US- 6285319	09-04-2001	Rose	
		US- 6301289	10-09-2001	Bejjani et al.	
		US- 6304618	10-16-2001	Hafeez et al.	
		US- 6308072	10-23-2001	Labeledz et al.	
		US- 6310704	10-30-2001	Dogan et al.	
		US- 6317453	11-13-2001	Chang	
		US- 6321090	11-20-2001	Soliman	
		US- 6324159	11-27-2001	Mennekens et al.	
		US- 6327471	12-04-2001	Song	
		US- 6330460	12-11-2001	Wong et al.	
		US- 6333947	12-25-2005	van Heeswyk et al.	
		US- 6351235	02-26-2002	Stilp	
		US- 6351642	02-26-2002	Corbett et al.	
		US- 6359874	03-19-2002	Dent	
		US- 6362760	03-26-2002	Kober et al.	
		US- 6377636	04-23-2002	Paulraj et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
						628531
						628531
						628531
						628531
						628531

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 7

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 6380879	04-30-2002	Kober et al.	
		US- 6396804	05-28-2002	Odenwalder	
		US- 6430216	08-06-2002	Kober et al.	
		US- 6459693	10-01-2002	Park et al.	
		US- 20010003443	06-14-2001	Velazquez et al.	
		US- 20010020912	09-13-2001	Naruse et al.	
		US- 20010021646	09-13-2001	Antonucci et al.	
		US- 20010046266	11-29-2001	Rakib et al.	
		US- 20020001299	01-23-2002	Petch et al.	
		US- 20020172173	11-21-2002	Schilling et al.	
		US- 20030053526	03-20-2003	Reznik	
		US- 6285861	09-04-2001	Bonaccorso et al.	
		US- 3742201	06-26-1973	Groginsky	
		US- 4713794	12-15-1987	Byington et al.	
		US- 5377183	12-27-1994	Dent	
		US- 20020051433	05-02-2002	Affes et al.	
		US- 5894500	04-13-1999	Bruckert et al.	
		US- 6404760	06-11-2002	Holtzman et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
						643021
						643021
						643021
						643021
						643021

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 8

of 12

**Complete if Known**

Application Number	10/686,828
Filing Date	Oct. 15, 2003
First Named Inventor	Eric S. Olson
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0010

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 6584115	06-24-2003	Suzuki	
		US- 6266529	07-24-2001	Chheda	
		US- 5978413	11-02-1999	Bender	
		US- 6590888	07-08-2003	Ohshima	
		US- 20020176488	11-28-2002	Kober et al.	
		US- 6032056	02-29-2000	Reudink	
		US- 4601046	07-15-1986	Halpern	
		US- 6515980	02-04-2003	Bottomley	
		US- 6574,270	06-03-2003	Madkour	
		US- 6798737	09-28-2004	Dabak	
		US- 6501788	12-31-2002	Wang	
		US- 6801565	10-05-2004	Bottomley	
		US- 6404760	06-11-2002	Holtzman	
		US- 6385264	05-07-2002	Terasawa	
		US- 6680727	01-20-2004	Butler	
		US- 6570909	05-27-2003	Kansakoski	
		US- 6580771	06-17-2003	Kenney	
		US- 6363104	03-26-2002	Bottomley	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
						597841
						597841
						597841
						597841
						597841

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	10/686,828
		Filing Date	Oct. 15, 2003
		First Named Inventor	Eric S. Olson
		Art Unit	
		Examiner Name	
Sheet 9	of 12	Attorney Docket Number	TCOM-0010

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		MITRA, ET AL., Adaptive Decorrelating Detectors for CDMA Systems, Accepted for Wireless Communications Journal, Accepted May 1995	
		SCHNEIDER, Optimum Detection of Code Division Multiplexed Signals, IEEE Transactions on Aerospace and Electronic Systems, Jan. 1979, Vol. AES-15 No. 1	12
		MITRA, ET AL., Adaptive Receiver Algorithms for Near-Far Resistant CDMA, IEEE Transactions on Communications, Apr. 1995	
		LUPAS, ET AL. Near-Far Resistance of Multiuser Detectors in Asynchronous Channels, IEEE Transactions on Communications, April 1990, Vol. 38, No. 4	
		LUPAS, ET AL., Linear Multiuser Detectors for Synchronous Code-Division Multiple-Access Channels, IEEE Transactions on Information Theory, Jan. 1989, Vol. 35, No. 1	
		KOHNO, ET AL., Cancellation Techniques of Co-Channel Interference in Asynchronous Spread Spectrum Multiple Access Systems, May 1983, Vol. J 56-A. No. 5	
		GARG, ET AL., Wireless and Personal Communications Systems, 1996, pgs. 79-151, Prentice Hall, Upper Saddle River, NJ, US	
		CHENG, ET AL., Spread-Spectrum Code Acquisition in the Presence of Doppler Shift and Data Modulation, IEEE Transactions on Communications, Feb. 1990, Vol. 38, No. 2	
		BEHRENS ET AL., Parameter Estimation in the Presence of Low Rank Noise, pgs. 341-344, Maple Press, 1988	
		BEST, Phase-Locked Loops - Design, Simulation, and Applications, pgs. 251-287, McGraw-Hill, 1999	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/686,828
				Filing Date	Oct. 15, 2003
				First Named Inventor	Eric S. Olson
				Art Unit	
				Examiner Name	
Sheet	10	of	12	Attorney Docket Number	TCOM-0010

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	
		ILTIS, Multiuser Detection of Quasisynchronous CDMA Signals Using Linear Decorrelators, IEEE Transactions on Communications, Nov. 1996, Vol. 44, No. 11		
		RAPPAPORT, Wireless Communications - Principles & Practice, 1996, pgs. 518-533, Prentice Hall, Upper Saddle River, NJ, US	12	
		SCHARF, ET AL., Matched Subspace Detectors, IEEE Transactions on Signal Processing, Aug. 1994, Vol. 42, No. 8.		
		PRICE ET AL., A Communication Technique for Multipath Channels, Proceedings to the IRE, 1958, Vol. 46, The Institute of Radio Engineers, New York, NY, US		
		AFFES ET AL., Interference Subspace Rejection: A Framework for Multiuser Detection in Wideband CDMA, IEEE Journal on Selected Areas in Communications, Feb. 2002, Vol. 20, No. 2		
		SCHLEGEL ET AL., Coded Asynchronous CDMA and Its Efficient Detection, IEEE Transactions on Information Theory, Nov. 1998, Vol. 44, No. 7		
		XIE ET AL., A family of Suboptimum Detectors for Coherent Multiuser Communications, IEEE Journal on Selected Areas in Communications, May 1990, Vol. 8, No. 4		
		VITERBI, Very Low Rate Convolutional Codes for Maximum Theoretical Performance of Spread Spectrum Multiple-Access Channels, IEEE Journal on Selected Areas in Communications, May 1990, Vol. 8, No. 4		
		VITERBI, CDMA - Principles of Spread Spectrum Communication, 1995, pgs. 11-75 and 179-233, Addison-Wesley, Reading, MA, US		
		VERDU, Minimum Probability of Error for Asynchronous Gaussian Multiple-Access Channels, IEEE Transactions on Information Theory, Jan. 1986, Vol. IT-32, No. 1		

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	10/686,828
		Filing Date	Oct. 15, 2003
		First Named Inventor	Eric S. Olson
		Art Unit	
		Examiner Name	
Sheet 11 of 12	Attorney Docket Number	TCOM-0010	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		KAPLAN, Understanding GPS - Principles and Applications, 1996, pgs. 83-236, Artech House, Norwood, MA, US	
		SCHARF, Statistical Signal Processing - Detection, Estimation, and Time Series Analysis, 1990, pgs. 23-75 and 103-178, Addison-Wesley, Reading, MA, US	12
		STIMSON, Introduction to Airborne Radar 2nd edition, 1998, pgs. 163-176 and 473-491, SciTech Publishing, Mendham, NJ, US	
		BEHRENS ET AL., Signal Processing Applications of Oblique Projection Operators, IEEE Transactions on Signal Processing, Jun. 1994, Vol. 42, No. 6	
		ALEXANDER ET AL., A Linear Receiver for Coded Multiuser CDMA, IEEE Transactions on Communications, May 1997, Vol. 45, No. 5	
		SCHLEGEL ET AL., Multiuser Projection Receivers, IEEE Journal on Selected Areas in Communications, Oct. 1996, Vol. 14, No. 8	
		HALPER ET AL., Digital-to-Analog Conversion by Pulse-Count Modulation Methods, IEEE Transactions on Instrumentation and Measurement, Aug. 1996, Vol. 45, No. 4	
		ORTEGA ET AL., Analog to Digital and Digital to Analog Conversion Based on Stochastic Logic, IEEE 0-7803-3026-9/95, 1995	
		FRANKEL ET AL., High-performance photonic analogue digital converter, Electronic Letters, Dec. 4, 1997, Vol. 33, No. 25	
		LIN ET AL., Digital Filters for High Performance Audio Delta-sigma Analog-to-digital and Digital-to-analog Conversions, Proceedings of ICSP, Crystal Semiconductor Corporation, 1996, Austin, TX, US	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

12

of

12

**Complete if Known**

Application Number

10/686,828

Filing Date

Oct. 15, 2003

First Named Inventor

Eric S. Olson

Art Unit

Examiner Name

Attorney Docket Number

TCOM-0010

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		THOMAS, Thesis for the Doctor of Philosophy Degree, UMI Dissertation Services, Jun. 1996, Ann Arbor, MI, US	
		SCHLEGEL ET AL., Projection Receiver: A New Efficient Multi-User Detector, IEEE, 1995, 0-7803-2509-5/95	12
		BEHRENS, Subspace Signal Processing in Structured Noise, UMI Dissertation Services, Jun. 1990, Ann Arbor, MI, US	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.